

#### ABSTRACT

An integrated circuit is partitioned into two or more sub-circuits, each sub-circuit including two supply terminals across which to receive supply voltage. The sub-circuits are connected in series with the first sub-circuit receiving input voltage at its first supply terminal, and the voltage level output at the second supply terminal of the first sub-circuit being used as input voltage level in a second sub-circuit. Further, a control-circuit is configured to balance voltage drops across the sub-circuits and to maintain constant voltage-drops over the sub-circuits. The control-circuit includes two buffer capacitors, each coupled in parallel over one of the two sub-circuits respectively. The control-circuit also includes at least one bucket capacitor alternately coupled in parallel over the first and the second buffer capacitor through a switching system controlled by a toggling signal.